CLAIMS

1. A stent assembly for implantation in a body lumen comprising:

a stent; and

at least one band circumferentially wrapped around the stent, the width of the band being substantially less than the diameter of the stent; and

wherein the band further comprises a polymer containing a therapeutic agent, the band elastically gripping the stent.

2. The stent assembly of claim 1 wherein the therapeutic agent is selected from the group consisting of pharmaceutical agents, radioactive agents, bioactive agents, and combinations thereof.

3. The stent assembly of claim 1 wherein the therapeutic agent is selected from the group consisting of thrombin inhibitors, antithrombogenic agents, thrombolytic agents, fibrinolytic agents, vasospasm inhibitors, calcium channel blockers, vasodilators, antihypertensive agents, antimicrobial agents, antibiotics, inhibitors of surface glycoprotein receptors, antiplatelet agents, antimitotics, microtubule inhibitors, anti secretory agents, actin inhibitors, remodeling inhibitors, antisense nucleotides, anti metabolites, antiproliferatives, anticancer chemotherapeutic agents, anti-inflammatory steroid or non-steroidal anti-inflammatory agents, immunosuppressive agents, growth hormone antagonists, growth factors, dopamine agonists, radiotherapeutic agents, peptides, proteins, enzymes, extracellular matrix components, inhibitors, free radical scavengers, chelators, antioxidants, anti polymerases, antiviral agents, photodynamic therapy agents, gene therapy agents, and combinations thereof.

4. The stent assembly of claim 1 wherein the polymer is selected from the group consisting of a single polymer, a copolymer blend, a polymer mixture, a copolymer mixture, and a polymer-copolymer mixture.

5. The stent assembly of claim 1 wherein the polymer is selected from the group consisting of a biostable polymer, a bioabsorbable polymer, and a biomolecular polymer.

6. The stent assembly of claim 1 wherein the polymer is selected from the group consisting of poly(L-lactic acid), polycaprolactone, poly(lactide-co-glycolide), poly(hydroxybutyrate), poly(hydroxybutyrate-co-valerate), polydioxanone, polyorthoester, polyanhydride, poly(glycolic acid), poly(D,L-lactic acid), poly(glycolic acid-co-trimethylene carbonate), polyphosphoester, polyphosphoester urethane, poly(amino acids), cyanoacrylates, poly(trimethylene carbonate), poly(iminocarbonate), copoly(ether-esters), PEO/PLA, polyalkylene oxalates, polyphosphazenes, fibrin, fibrinogen, cellulose, starch, collagen and hyaluronic acid, polyurethanes, silicones, polyesters, polyolefins, polyisobutylene, ethylene-alphaolefin copolymers, acrylic polymers, acrylic copolymers, vinyl halide polymers, vinyl halide copolymers, polyvinyl chloride, polyvinyl ethers, polyvinyl methyl ether, polyvinylidene halides, polyvinylidene fluoride, polyvinylidene chloride, polyacrylonitrile, polyvinyl ketones, polyvinyl aromatics, polystyrene, polyvinyl esters, polyvinyl acetate, copolymers of vinyl monomers, copolymers of vinyl monomers with olefins, ethylene-methyl methacrylate copolymers, acrylonitrile-styrene copolymers, ABS resins, ethylene-vinyl acetate copolymers, polyamides, nylon 66, polycaprolactam, alkyd resins, polycarbonates, polyoxymethylenes, polyimides, polyethers, epoxy resins, polyurethanes, rayon, rayon-triacetate, cellulose, cellulose acetate, cellulose butyrate, cellulose acetate butyrate, cellophane, cellulose nitrate, cellulose propionate, cellulose ethers, carboxymethyl cellulose, and mixtures thereof.

7. The stent assembly of claim 1 further comprising a plurality of bands, wherein individual bands of the plurality of bands contain different therapeutic agents.

8. The stent assembly of claim 1 further comprising a plurality of bands, wherein the individual bands of the plurality of bands are made of different polymers.

9. The stent assembly of claim 1 wherein the band further comprises a first layer and a second layer, the first layer located circumferentially around the stent, and the second layer attached circumferentially around the first layer.

10. The stent assembly of claim 9 wherein at least one of the layers is biodegradable.

11. The stent assembly of claim 9 wherein the first layer contains one therapeutic agent and the second layer contains a different therapeutic agent.

12. The stent assembly of claim 1 wherein the band further comprises a plurality of interwoven filaments.

13. The stent assembly of claim 12 wherein individual filaments of the plurality of interwoven filaments contain different therapeutic agents.

14. The stent assembly of claim 12 wherein individual filaments of the plurality of interwoven filaments are made of different polymers.

15. A stent assembly for implantation in a body lumen comprising:

a stent; and

at least one helical wrap helically wrapped around the stent, the width of the helical wrap being substantially less than the diameter of the stent;

wherein the helical wrap further comprises a polymer containing a therapeutic agent.

16. The stent assembly of claim 15 wherein the therapeutic agent is selected from the group consisting of pharmaceutical agents, radioactive agents, bioactive agents, and combinations thereof.

17. The stent assembly of claim 15 wherein the therapeutic agent is selected from the group consisting of thrombin inhibitors, antithrombogenic agents, thrombolytic agents, fibrinolytic agents, vasospasm inhibitors, calcium channel blockers, vasodilators, antihypertensive agents, antimicrobial agents, antibiotics, inhibitors of surface glycoprotein receptors, antiplatelet agents, antimitotics, microtubule inhibitors, anti secretory agents, actin inhibitors, remodeling inhibitors, antisense nucleotides, anti metabolites, antiproliferatives, anticancer chemotherapeutic agents, anti-inflammatory steroid or non-steroidal anti-inflammatory agents, immunosuppressive agents, growth hormone antagonists, growth factors, dopamine agonists, radiotherapeutic agents, peptides, proteins, enzymes, extracellular matrix components, inhibitors, free radical scavengers, chelators, antioxidants, anti polymerases, antiviral agents, photodynamic therapy agents, gene therapy agents, and combinations thereof.

18. The stent assembly of claim 15 wherein the polymer is selected from the group consisting of a single polymer, a copolymer blend, a polymer mixture, a copolymer mixture, and a polymer-copolymer mixture.

19. The stent assembly of claim 15 wherein the polymer is selected from the group consisting of a biostable polymer, a bioabsorbable polymer, and a biomolecular polymer.

20. The stent assembly of claim 15 wherein the polymer is selected from the group consisting of poly(L-lactic acid), polycaprolactone, poly(lactide-co-glycolide), poly(hydroxybutyrate), poly(hydroxybutyrate-co-valerate), polydioxanone, polyorthoester, polyanhydride, poly(glycolic acid), poly(D,L-lactic acid), poly(glycolic acid-co-trimethylene carbonate), polyphosphoester, polyphosphoester urethane, poly(amino acids), cyanoacrylates, poly(trimethylene carbonate), poly(iminocarbonate), copoly(ether-esters), PEO/PLA, polyalkylene oxalates, polyphosphazenes, fibrin, fibrinogen, cellulose, starch, collagen and hyaluronic acid, polyurethanes, silicones, polyesters, polyolefins, polyisobutylene, ethylene-alphaolefin copolymers, acrylic polymers, acrylic copolymers, vinyl halide polymers, vinyl halide copolymers, polyvinyl chloride, polyvinyl ethers, polyvinyl methyl ether, polyvinylidene halides, polyvinylidene fluoride, polyvinylidene chloride, polyacrylonitrile, polyvinyl ketones, polyvinyl aromatics, polystyrene, polyvinyl esters, polyvinyl acetate, copolymers of vinyl monomers, copolymers of vinyl monomers with olefins, ethylene-methyl methacrylate copolymers, acrylonitrile-styrene copolymers, ABS resins, ethylene-vinyl acetate copolymers, polyamides, nylon 66, polycaprolactam, alkyd resins, polycarbonates, polyoxymethylenes, polyimides, polyethers, epoxy resins, polyurethanes, rayon, rayon-triacetate, cellulose, cellulose acetate, cellulose butyrate, cellulose acetate butyrate, cellophane, cellulose nitrate, cellulose propionate, cellulose ethers, carboxymethyl cellulose, and mixtures thereof.

21. The stent assembly of claim 15 further comprising a plurality of helical wraps.

22. The stent assembly of claim 15 wherein the helical wrap further comprises a first layer and a second layer, the first layer located around the stent, and the second layer attached around the first layer.

23. The stent assembly of claim 22 wherein at least one of the layers is biodegradable.

24. The stent assembly of claim 22 wherein the first layer contains one therapeutic agent and the second layer contains a different therapeutic agent.

25. The stent assembly of claim 15 wherein the helical wrap further comprises a plurality of interwoven filaments.

26. The stent assembly of claim 25 wherein individual filaments of the plurality of interwoven filaments contain different therapeutic agents.

27. The stent assembly of claim 25 wherein individual filaments of the plurality of interwoven filaments are made of different polymers.

28. A stent assembly for implantation in a body lumen comprising:

means for supporting walls of the body lumen; and

means for eluting a therapeutic agent, the eluting means removably wrapped around the supporting means, the width of the eluting means being substantially less than the diameter of the supporting means.

29. The stent assembly of claim 28 wherein the eluting means is at least one band circumferentially wrapped around the supporting means.

30. The stent assembly of claim 28 wherein the eluting means is a helical wrap helically wrapped around the supporting means.

31. The stent assembly of claim 28 wherein the therapeutic agent is selected from the group consisting of pharmaceutical agents, radioactive agents, bioactive agents, and combinations thereof.

32. The stent assembly of claim 28 wherein the eluting means comprises a polymer selected from the group consisting of a single polymer, a copolymer blend, a polymer mixture, a copolymer mixture, and a polymer-copolymer mixture.

33. The stent assembly of claim 28 wherein the eluting means comprises a polymer selected from the group consisting of a biostable polymer, a bioabsorbable polymer, and a biomolecular polymer.